

09/817,615

F0658/AMDP658US

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

Listing of Claims:

1. (Currently amended) A system for performing inventory control, comprising:
one or more inventories adapted to store at least one of wafers, unpackaged circuits and packaged circuits, where the wafers are suitable for processing into integrated circuits, and where at least one of the wafers, the unpackaged circuits and the packaged circuits are marked with one or more barcodes;
one or more barcode readers operable to read ~~two~~ three or more barcodes, at least one of the ~~two or more~~ third barcodes coupled to the integrated circuits and encodes information sufficient to identify the wafers ~~[[on]]~~ from which the integrated circuits were fabricated by relating the ~~third barcode~~ barcodes coupled to the integrated circuits to at least one of a first barcode, barcode marked on the wafer and the wafer information stored in a data store, one or more second barcodes and fabrication information stored in the data store, the third barcodes further encoding packaging information related to packaging of the integrated circuits; and
one or more sorters adapted to route at least one of wafers, unpackaged circuits and packaged circuits to one or more inventories based, at least in part, on information encoded by the two or more barcodes.
2. (Original) The system of claim 1, wherein the barcodes are formatted according to at least one of, three of nine format, code ninety three format, interleaved code two of five format, code one twenty eight format, Colorado barcode format and two-dimensional format.
3. (Original) The system of claim 1, further comprising one or more transporters adapted to move one or more wafers, unpackaged circuits and packaged circuits between the one or more inventories, the one or more barcode readers and the one or more sorters.

09/817,615

F0658/AMDP658US

4. (Previously presented) The system of claim 1, wherein:
at least one of the one or more inventories is partitioned into one or more addressable locations;
at least one of the one or more inventories is operable to selectively retrieve an individual designated wafer, unpackaged circuit and/or packaged circuit from an addressable location; and
at least one of the one or more inventories is further operable to selectively deposit at least one of an individual designated wafer, unpackaged circuit and packaged circuit in an addressable location.
5. (Original) The system of claim 1, wherein:
at least one of the one or more inventories is partitioned into one or more addressable locations;
at least one of the one or more inventories is adapted to selectively retrieve one or more groups of designated wafers, unpackaged circuits and packaged circuits from one or more addressable locations; and
at least one of the one or more inventories is further adapted to selectively deposit groups of designated wafers, unpackaged circuits and packaged circuits in one or more addressable locations.
6. (Previously presented) The system of claim 1, wherein the sorter is adapted to selectively route at least one of wafers, unpackaged circuits and packaged circuits to one or more inventories based on at least one of age, location, supplier, stage of manufacturer and defect information.
7. (Previously presented) The system of claim 1, further comprising:
one or more manufacturing devices adapted to perform one or more manufacturing processes on at least one of the wafers, the unpackaged circuits and/or the packaged circuits; and
where the one or more sorters are further adapted to route at least one of wafers, unpackaged circuits and packaged circuits to the one or more manufacturing devices based, at least in part, on information encoded by the one or more barcodes.

09/817,615

F0658/AMDP658US

8. (Original) The system of claim 7, wherein the one or more manufacturing devices include at least one of, a stepper and a spin track.
9. (Previously presented) The system of claim 8, further comprising:
one or more feedback systems adapted to receive feedback information from at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices, the one or more feedback systems adapted to generate control information that is fed forward to at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices.
10. (Original) The system of claim 1, further comprising:
one or more inventory control data stores, at least one of the one or more inventory control data stores operably connected to at least one of the one or more barcode readers, to at least one of the one or more sorters and to at least one of the one or more inventories.
11. (Original) The system of claim 10, the one or more inventory control data stores comprising at least one of a database, an array, a table, a stack, a queue, a list and a file.
12. (Original) The system of claim 11, wherein the one or more inventory control data stores are operably connected to at least one of the one or more manufacturing devices.
13. (Original) The system of claim 11, wherein the one or more inventory control data stores are operably connected to at least one of the one or more feedback systems.

09/817,615

F0658/AMDP658US

14. (Currently amended) A system for performing inventory control comprising:

one or more inventories adapted to store at least one of wafers, unpackaged circuits and packaged circuits, where the wafers are suitable for processing into integrated circuits and where at least one of the wafers, the unpackaged circuits and the packaged circuits are marked with one or more barcodes;

one or more barcode readers operable to read one or more barcodes on the wafers, unpackaged circuits and packaged circuits;

one or more manufacturing devices adapted to perform one or more manufacturing processes on the wafers, unpackaged circuits and packaged circuits;

one or more sorters adapted to route at least one of wafers, unpackaged circuits and packaged circuits to at least one of the one or more inventories and the one or more manufacturing devices based, at least in part, on information encoded by the one or more barcodes;

one or more feedback systems adapted to receive feedback information from at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices, the one or more feedback systems adapted to generate control information that is fed forward to at least one of the one or more barcode readers, the one or more sorters and the one or more manufacturing devices; and

one or more Electronic Data Interchange (EDI) systems adapted to transmit one or more EDI data to one or more EDI data destinations, the one or more EDI data being generated by at least one of the one or more barcode readers, the one or more inventories, the one or more sorters, the one or more manufacturing devices and the one or more feedback ~~systems~~ systems,

the one or more EDI data including at least one of ordering information, defect information and delivery information.

15. (Canceled)

09/817,615

F0658/AMDP658US

16. (Currently amended) A method for performing inventory control, comprising:
retrieving a wafer from a wafer store, the wafer being suitable for processing into integrated circuits;
reading a first barcode on the wafer, ~~[[and]]~~ a second barcode marked on the integrated circuits, and a third barcode marked on the integrated circuit, the second barcode encodes the identity of the wafer on which the integrated circuits are fabricated by relating the second barcode to the first barcode and wafer information, the third barcode encodes information sufficient to identify the wafer from which the integrated circuit was fabricated by relating the third barcodes to at least one of the first barcode, wafer information stored in a data store, the one or more second barcodes and fabrication information stored in the data store, the third barcode further encodes packaging information related to packaging of the integrated circuit; and
sending the wafer to a wafer destination based, at least in part, on information encoded in the first barcode.
17. (Previously presented) The method of claim 16, wherein retrieving a wafer from a wafer store comprises:
identifying a wafer store from which to retrieve a wafer;
identifying a wafer to retrieve from a wafer store; and
moving the wafer from the wafer store to a barcode reader.
18. (Previously presented) The method of claim 17, wherein sending a wafer to wafer store comprises:
identifying a wafer store to which to route a wafer;
identifying a wafer to route to the wafer store; and
moving the wafer to the wafer store.
19. (Original) The method of claim 18, further comprising:
accessing stored data associated with information encoded on a barcode on a wafer; and
controlling one or more behaviors of one or more wafer destinations based at least in part on accessing the stored data.

09/817,615

F0658/AMDP658US

20. (Original) The method of claim 19, wherein the stored data includes at least one of, wafer age, wafer location, wafer manufacturer, stage of wafer processing completed, next stage of wafer processing to be performed and wafer defects.
21. (Original) The method of claim 16, further comprising:
accepting feedback information from the one or more wafer destinations.
22. (Original) The method of claim 21, wherein the feedback information includes at least one of, wafer source status information and wafer destination status information.
23. (Original) The method of claim 22, wherein the wafer source status information includes at least one of an availability of a wafer source, a capacity of a wafer source, an identifier of a wafer in a wafer source and a count of wafers in a wafer source.
24. (Original) The method of claim 22, wherein the wafer destination status information includes at least one of an availability of a wafer destination, a capacity of a wafer destination, an identifier of a wafer in a wafer destination and a count of wafers in a wafer destination.
25. (Previously presented) The method of claim 21, further comprising:
generating control information based on the feedback information, the control information employable to adapt the behavior of at least one of the wafer sources, at least one of the wafer destinations, or at least one of both a wafer source and a wafer destination.
26. (Original) The method of claim 16 further comprising:
collecting information from the one or more wafer stores; and
sending information to the one or more wafer destinations.

09/817,615

F0658/AMDP658US

27. (Currently amended) A computer readable medium containing computer executable instructions operable to perform a method for performing inventory control, comprising:

retrieving a wafer from a wafer store, the wafer being suitable for processing into integrated circuits;

reading a first barcode on the wafer, [[and]] a second barcode marked on the integrated circuits, and a third barcode marked on the integrated circuit, the second barcode encodes the identity of the wafer on which the integrated circuits are fabricated by relating the second barcode to the first barcode and wafer information, the third barcode encodes information sufficient to identify the wafer from which the integrated circuit was fabricated by relating the third barcodes to at least one of the first barcode, wafer information stored in a data store, the one or more second barcodes and fabrication information stored in the data store, the third barcode further encodes packaging information related to the packaging of the integrated circuit; and

sending the wafer to a wafer destination based, at least in part, on information encoded in the first barcode.

09/817,615

F0658/AMDP658US

28. (Original) A method for tracking integrated circuits fabricated from wafers, comprising:
- marking a wafer with a first barcode, the wafer suitable for processing into integrated circuits, the first barcode encoding a wafer information;
 - storing the wafer information and data sufficient to relate the wafer information to the first barcode in a barcode data store;
 - marking an integrated circuit being fabricated on the wafer with one or more second barcodes, the second barcodes encoding information sufficient to identify the wafer from which the integrated circuit was fabricated by relating the second barcodes to at least one of the first barcode and the wafer information, the second barcodes further encoding a fabrication information related to the fabrication of the integrated circuit;
 - storing the fabrication information and data sufficient to relate the fabrication information to the one or more second barcodes in the barcode data store;
 - marking a packaged integrated circuit fabricated from the wafer with one or more third barcodes, the third barcodes encoding information sufficient to identify the wafer from which the packaged integrated circuit was fabricated by relating the third barcodes to at least one of the first barcode, the wafer information stored in the data store, the one or more second barcodes and the fabrication information stored in the data store, the third barcodes further encoding a packaging information related to the packaging of the integrated circuit; and
 - storing the packaging information and data sufficient to relate the packaging information to the one or more third barcodes in the barcode data store.
29. (Original) The method of claim 28, wherein the wafer information comprises at least one of wafer manufacturer, wafer thickness, wafer diameter, date of first processing, apparatus employed in processing the wafer, reticles employed in processing the wafer, wafer composition and a wafer identifier.

09/817,615

F0658/AMDP658US

30. (Original) The method of claim 29, wherein the fabrication information comprises at least one of wafer manufacturer, wafer thickness, wafer diameter, date of first processing, apparatus employed in processing the wafer, wafer composition, integrated circuit manufacturer, apparatus employed in fabricating the integrated circuit, reticles employed in fabricating the integrated circuit, fabrication steps performed on the integrated circuit, date of fabrication, position on the wafer, an integrated circuit identifier and the wafer identifier.
31. (Original) The method of claim 30, wherein the packaging information comprises at least one of wafer manufacturer, wafer thickness, wafer diameter, date of first processing, apparatus employed in processing the wafer, wafer composition, integrated circuit manufacturer, apparatus employed in fabricating the integrated circuit, reticles employed in fabricating the integrated circuit, date of fabrication, position on the wafer, apparatus employed in packaging the integrated circuit, packaging date, the integrated circuit identifier, the wafer identifier and a packaging identifier.
32. (Previously presented) A method for performing inventory control, comprising:
generating Electronic Data Interchange (EDI) data associated with one or more barcodes on one or more wafers, the wafers being suitable for processing into integrated circuits; and
transmitting the EDI data to one or more suppliers of the wafers.
33. (Original) The method of claim 32, the EDI data including at least one of, a number of wafers received, a number of wafers processed, a number of wafers with defects, a number of wafers to be purchased and a number of wafers to be returned.
34. (Original) The method of claim 33, the EDI data including at least one of, the identity of one or more wafers processed, a list of manufacturing stages through which one or more wafers processed have passed, the identity of one or more wafers with defects, the identity of one or more wafers purchased and received and the identity of one or more wafers to be returned to the suppliers.

09/817,615

F0658/AMDP658US

35. (Currently amended) A data packet adapted to be transmitted between two or more computer processes, the data packet containing information related to identifying a wafer based on information encoded in a first barcode marked on an integrated circuit coupled to the wafer by relating the barcode on the integrated circuit to ~~at least one~~ a second barcode marked on the wafer and wafer information[[.]], and information related to at least one other barcode on the integrated circuit encoding information sufficient to identify the wafer from which the integrated circuit was fabricated by relating the third barcode to at least one of the first barcode, wafer information stored in a data store, the one or more second barcodes and fabrication information stored in the data store, the third barcode further encoding packaging information related to the packaging of the integrated circuit.

36. (Currently amended) A data packet adapted to be transmitted between two or more computer processes, the data packet containing feedback information related to inventory control and routing of wafers that have barcodes thereon, wherein the ~~wafers are suitable for processing into integrated circuits.~~ feedback information is used to generate control information that is fed forward to at least one of one or more barcode readers, one or more sorters, and one or more manufacturing devices,

the feedback information includes at least one of: the processing capacity of a feedback generator, the status of the feedback generator, processing time and/or cost associated with the feedback generator, scheduled maintenance time for the feedback generator, defect rate of the feedback generator and defect rate of a wafer handled by the feedback generator.